

REMARKS

In accordance with the foregoing, claim 33 has been cancelled and claims 1, 17, 32, 36, 38, and 39 have been amended. No new matter is being presented, and approval and entry are respectfully requested. Claims 1, 4-6, 17, 27-29, and 31, 32, and 34-40 are pending and under consideration. Reconsideration is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 103

Claims 1, 17, 27-29, 31-35, 37, and 39-40 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Vancelette (U.S. Patent No. 5,894,320) in view of Eyer (U.S. Patent No. 5,982,411).

Claim 1 has been amended to recite "displaying on a television screen, as a viewing program, a program of a minor channel corresponding to a lowest minor channel number, among minor channels received through the demanded major channel; and displaying on the digital television all of minor channel numbers associated with the minor channels received through the demanded major channel; wherein the displayed all of minor channel numbers comprise at least one minor channel number corresponding to a program of a minor channel which is not currently displayed on the digital television among programs of the minor channels."

Claims 17 and 32 also have been amended to recite "a program of a minor channel corresponding to a lowest minor channel number, among minor channels received through the selected major channel and all of minor channel numbers associated with minor channels received through the selected major channel..."

Vancelette discusses "The microprocessor 540 will issue selection commands to the processing and decompression function 555 according to the code, signals from the user interface 535, and channel mapping and control data stored in memory 560. For instance, assume the viewer has not yet entered any commands to the user interface 535 other than selecting a primary channel to view. The microprocessor will then determine which audio and video packets in the received data stream correspond to the primary signals of the particular programming service provider (e.g., network X). Using the packet PIDs, the appropriate video and audio packets will be processed at function 555. Additionally, OSD data from the OSD processor 545 will be combined with the video signal at function 555 to form a composite video signal, which can allow, for instance, a split screen or overlay format with part of the screen of the device 580 displaying the OSD graphics, and part of the screen displaying the video data." The output from function 555 will be a baseband signal carrying digital audio, video and graphics data. The baseband signal will be converted to an analog signal at digital-to-analog (D/A) converter 550, then provided to a modulator 570. At the modulator 570, the analog signal

is modulated at an RF carrier frequency which is set by the microprocessor 540, or at a default frequency (e.g., 60-66 MHz) which is compatible with the display device 580. In accordance with the present invention, the microprocessor 540 can change the pre-assigned channel mapping data of the audio and video packets corresponding to a particular programming service provider and channel designation. This allows the alternate audio and video signals which are associated with the same program to be selected by the viewer and displayed on the device 580. For instance, the primary audio and video signals of the service provider network X may be associated with the designator "channel 10". The present invention can modify the channel mapping such that alternate video and audio signals of "network X" are displayed on "channel 10." (see col. 10, lines 21-56 of Vancellette).

As noted above, Vacelette merely discusses "This allows the alternate audio and video signals which are associated with the same program to be selected by the viewer and displayed on the device 580," but fails to disclose "displaying on a television screen, as a viewing program, a program of a minor channel corresponding to a lowest minor channel number, among minor channels received through the demanded major channel; and displaying on the digital television all of minor channel numbers associated with the minor channels received through the demanded major channel; wherein the displayed all of minor channel numbers comprise at least one minor channel number corresponding to a program of a minor channel which is not currently displayed on the digital television among programs of the minor channels" as recited in claim 1.

The Office Action acknowledges that Vancellette does not disclose "displaying on the digital television minor channel numbers associated with minor channels received through the demanded major channel..."

Claim 1 also recites "wherein the displayed all of minor channel numbers comprise at least one minor channel number corresponding to a program of a minor channel which is not currently displayed on the digital television among programs of the minor channels."(emphasis added).

Eyer discusses "Note that channels ABC-1, ABC-2 and ABC-3 have been referred to in terms of their call letters and not by a numerical channel designator. In order to reinforce in the viewer's mind that particular channels are part of a group of a common service provider, for instance, it may be desirable to use the same channel designator of the primary channel, or a variation thereof, for the secondary channels. For instance, it may be desirable to provide a display on the decoder or the television, for instance, which informs the viewer that channels ABC-1, ABC-2 and ABC-3 are designated, respectively, "10.1", "10.2" and "10.3", or "10-A",

"10-B" and "10-C," or the like. In this way, the viewer is reminded that channels ABC-1, ABC-2 and ABC-3 are related to channel 10, the viewer's well-known local affiliate. The secondary channels may be thought of as being "inside" the familiar channel 10, or somehow right next to channel 10 in the broadcast signal. Moreover, even if channel 10 (e.g., local affiliate KGTV) moves to a different frequency spectrum, transport stream and/or PID, either as an analog or digital signal, the channel 10 group, or "family", of stations can still be maintained. In particular, the KGTV signal can be assigned to a virtual channel 10 to maintain a continuing identity with viewers. The designation "10" is "virtual" since it does not necessarily correspond to the FCC channel designation scheme or any particular frequency spectrum or PID location."(see col. 9, lines 57 to col.10, lines 7 of Eyer).

As noted above, Eyer merely discloses "For instance, it may be desirable to provide a display on the decoder or the television, for instance, which informs the viewer that channels ABC-1, ABC-2 and ABC-3 are designated, respectively, "10.1", "10.2" and "10.3", or "10-A", "10-B" and "10-C," or the like," but fails to disclose "wherein the displayed all of minor channel numbers comprise at least one minor channel number corresponding to a program of a minor channel which is not currently displayed on the digital television among programs of the minor channels" as recited in claim 1.

Accordingly, it is respectfully submitted that the combination of Vancellette and Eyer does not teach or suggest the invention as recited in claim 1, and similarly in claim 17.

In addition, claims 27-29 are also patentable due at least to their depending from claim 1, as well as for the additional recitations therein.

Claim 32 recites "selecting a radio frequency (RF) channel corresponding to a major channel number selected by a user..."

Vancellette discusses "FIG. 3 is a diagrammatic illustration of an in-band packetized data stream in accordance with the present invention. The packetized data stream from function 22 in FIG. 1 is provided to encryptor/multiplexer 26. The data stream includes channel A video packets 310, channel A audio packets 320, channel B video packets 330, channel B audio packets 340, channel C video packets 350, and channel C audio packets 360. Also included are in-band control data packet PID 0, shown at 370, and in-band control data packet PID 1, shown at 380. The audio and video packets of a particular channel are shown grouped in a video/audio pair, but this is not required. For instance, an audio feed can be provided without an accompanying video feed. The audio and video data packets are time-multiplexed by multiplexer 26 to provide the packetized data stream 380. The data stream 380 is modulated at a specific carrier frequency according to the transmission scheme (e.g., via cable or satellite)

and the programming service provider. For example, network X may use a 6 MHz bandwidth at a carrier frequency of 1.2 GHz to broadcast its signal over the satellite link (40, 42, 44) of FIG. 1. Moreover, the ten channels carried in a 6 MHz bandwidth may correspond to one or more programming service providers. Similarly, a single service provider may consume a spectrum of more than 6 MHz.”(see col. 8, lines 20-45 of Vancelette).

As noted above, Vancelette merely discusses “the ten channels carried in a 6 MHz bandwidth may correspond to one or more programming service providers,” but fails to discuss “selecting a radio frequency (RF) channel corresponding to a major channel number selected by a user...” as recited in claim 32.

Claim 32 also has been amended to recite “displaying, as a viewing program, a program of a minor channel corresponding to a lowest minor channel, among minor channels received through said selected RF channel corresponding to the major channel number selected by the user...”

In view of above amendment, none of cited references discloses the features of claim 32.

Accordingly, it is respectfully submitted that the combination of Vancelette and Eyer does not teach or suggest the invention as recited in claim 32 and similarly in claim 39.

In addition, it is respectfully submitted that the combination of Vancelette and Eyer fails to disclose the invention as recited in claim 40 which depending from claim 39, as well as for the additional recitations therein.

In addition, claims 34, 35, and 37 are also patentable due at least to their depending from claim 32, as well as for the additional recitations therein.

Claims 4-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Vancelette and Eyer, further in view of Etheredge (U.S. Patent No. 6,172,674).

Claim 4 recites “the method as claimed in claim 1, further comprising hiding said minor channel numbers after a prescribed time elapses.(emphasis added).

Etheredge discusses “In response to receiving the invoking signal from the user’s invoking of the activation input item, the system displays pop-up symbols in step 552. FIG. 14 shows the screen of FIG. 4 with eight pop-up symbols 576, 578, 580, 582, 584, 586, 588 and 590. Each of the pop-up symbols correspond to both an input item on the input device and at least one selection item. For example, pop-up symbol 576 corresponds to the numbered one button on remote control 148 (input item) and to help button 228 (selection item). Pop-up symbol 578 corresponds to the numbered two button on remote control 148 and name button 230. Pop-up symbol 580 corresponds to the numbered three button on remote control 148 and go to button 232. Pop-up symbol 582 corresponds to the numbered four button on remote

control 148 and slider 234. Pop-up symbol 584 corresponds to the numbered five button on remote control 148 and options button 236. Pop-up symbol 586 corresponds to the numbered six button on remote control 148 and guides button 238. Pop-up symbol 588 corresponds to the numbered seven button on remote control 148 and to grid 224. Pop-up symbol 590 corresponds to the eight button on remote control 148 and to advertisement 222. In the example of FIG. 14, each of the pop-up symbols are numbers, wherein each number is the number for the corresponding button on remote control 148. Thus, it is possible to access the selection items of FIG. 14 with a remote that only includes a keypad with numbers 0 through 9. Providing client computer 100 with a remote only including a keypad would lower the manufacturing cost of the system. Note that the pop-up symbols may partially occlude a selection item; however, the selection item is not completely erased from the screen and the user will be able to see at least part of the selection item below or next to the pop-up symbol corresponding to the selection item. In one embodiment, the step of displaying pop-up symbols includes displaying help information for the pop-up symbols.”(see col. 13, lines 26-50 of Etheredge-emphasis added).

As noted above, Pop-up symbols disclosed in Etheredge is directly related to buttons on remote control, but fails to disclose “minor channel numbers” as recited in claims 4 and 6.

In view of above, it is respectfully submitted that the combination of Vancelette, Eyer, and Etheredge does not teach or suggest the invention as recited in claims 4 and 6.

Claims 36 and 38 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Vancelette and Eyer, further in view of Keenan (U.S. Patent No. 5,161,023).

Claim 36 recites “if the minor channel number of said viewing program is the highest number, displaying a program of a lowest minor channel number as said viewing program, and returning to said displaying minor channel numbers; if the minor channel number of said viewing program is not the highest number displaying a program of a higher number adjacent to the minor channel number of said viewing program, and returning to said displaying minor channel numbers; if a channel down key is pressed, determining ...”

Keenan discusses “For purposes of explanation, these scan lists can be thought of as being arranged in memory (i.e., RAM 116) as shown in FIG. 3A. Each scan list is independent of the others. Each scan list has its own pointer, which upon reaching the bottom of the scan list while scanning down, “wraps around” to the top, and which upon reaching the top of the scan list while scanning up, “wraps around” to the bottom. For simplicity, scan lists 315, 325, and 335 are shown as including 32 (i.e., A0-A31) memory locations each. Also for simplicity, the “wrap around” arrows are shown extending between locations A0 and A31. In fact, a scan list having only three locations filled would “wrap around” between location A2 (i.e., the third location in the

list) and location A0. That is, the logical end of the scan list is not necessarily the same memory location as the physical end of the scan list. Note that in the prior art system of FIG. 3A, a user must first select the scan list containing the desired channel information, and then conduct a search for the desired channel. A problem occurs in this system when the user cannot remember which scan list is the proper one to select for searching. The scan lists of the present invention can be arranged as shown in FIG. 3B, or rearranged as shown in FIG. 4, by means of a user-entered command. Each scan list of FIG. 4 is linked with the others. The linked scan list has its own pointer, which upon reaching the bottom of the linked scan list while scanning down, "wraps around" to the top, and which upon reaching the top of the linked scan list while scanning up, "wraps around" to the bottom. As noted above, for simplicity, scan lists 415, 425, and 435 are shown as including 32 (i.e., A0-A31) memory locations each. Also for simplicity, the "wrap around" arrows are shown extending between locations A0 and A31. "(see col. 3, lines 40-52 and FIG. 3A of Keenan).

As noted above, Keenan is directly related to scan lists which formerly tuned channels and an order of tuned channels, but fails to disclose "displaying a program of a lowest minor channel number as said viewing program, and returning to said displaying minor channel numbers; if the minor channel number of said viewing program is not the highest number displaying a program of a higher number adjacent to the minor channel number of said viewing program" as recited in claim 36.

Accordingly, it is respectfully submitted that the combination of Vancelette, Eyer, and Keenan does not disclose the invention as recited in claims 36, and similarly in claim 38.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

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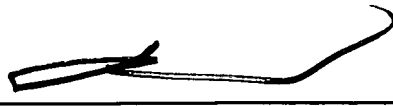
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If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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